



**ANSWERS**  
**California Integrated Waste Management Board**  
**Environmental Field Sampling Training**  
**Course Competency Exam**

Instructions: Complete each question with the best answer based on the information presented in this course.

1. Name two types of EPA sampling plans. (2 points) Answer: QAPP, SAP, FSP
  2. What does the acronym DQO mean? (1 point) Answer: Data Quality Objectives
  3. What are DQOs? (1 point) Answer: Seven step process to develop sampling plans
  4. Name two types of sampling schemes. (2 points) Answer: Authoritative (Biased or Judgmental are acceptable), Simple Random, Systematic Random, Systematic Grid, Stratified Random
  5. Which sampling scheme is preferred for the delineation of extent of contamination? (1 point) Answer: Systematic Random or Systematic Grid
  6. What computer program is available to assist with statistical sampling designs? (1 point) Answer: VSP
  7. Name two types of samples (not types of matrices). (2 points) Answer: Grab and composite
  8. Name two sampling devices used to collect subsurface soil samples. (2 points) Answer: Slam bar with corer, hand auger, air rotary drill rig, mud rotary drill rig, hollow stem auger, direct push
  9. Which is better for collection of a volatile compound in the air, a Tedlar bag or Summa Canister? (1 point) Answer: Summa canister
  10. Which is the California method for determination of the soluble contaminants in a sample, TCLP, TTLC, or STLC? (1 point) Answer: STLC
  11. A soil sample result indicated 12 mg/kg total cadmium. The TTCL limit is 100 mg/kg, STLC limit is 1 mg/L, and TCLP limit is 1.0 mg/L for cadmium. What test, if any, would you recommend be performed on this sample next? (1 point) Answer: WET (STLC acceptable)
  12. The STLC result for the soil sample in question 11 was 0.5 mg/L for cadmium. Is the soil considered hazardous waste? (1 point) Answer: No
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## ANSWERS (cont.)

13. The TCLP result for the soil sample in question 11 was 1.2 mg/L for cadmium. Is the soil considered a RCRA or California hazardous waste? (1 point) Answer: RCRA hazardous waste only.

14. Which container is used for collection a water sample for volatile analysis, a 1 L poly, 40 ml VOA vial, or 1 L glass amber? (1 point) Answer: 40 ml VOA vial

15. Why are samples cooled to  $4^{\circ} \pm 2^{\circ}\text{C}$ ? (1 point) Answer: Slow chemical changes to the contaminants of concern.

16. What is the primary difference in the equipment decontamination procedure when collecting samples for metal versus organic analysis? (2 points) Answer: Acid rinse for metals and solvent rinse for organics

17. Name two types of field QC samples and their purpose. (4 points) Answer: Field blank-cross contamination, equipment/rinsate blank-cross contamination, trip blank-cross contamination, duplicate/replicate-total error and homogeneity, collocated-localized variability, PE-lab performance, splits-lab performance

18. Name two types of lab QC samples. (2 points) Answer: MS, MSD, LCS, LCSD, method blank, duplicate, ICS

19. What is the State of California laboratory certification program, NELAP, ELAP, or NVLAP? (1 point) Answer: ELAP

20. What are two methods of retaining sample chain of custody? (2 points) Answers: In person's physical possession, in physical view of person, secured (seals) so that no one can tamper with it, and secured in area restricted to authorized personnel

21. What instrument is appropriate for determining the presence of VOCs in air for health and safety purposes? (1 point) Answer: MiniRae 2000 or PID

22. A Geiger-Muller (GM) detector will detect which types of nuclear radiation? (3 points) Answer: alpha, beta and gamma

23. Is it necessary to homogenize sample before analysis? (1 point) Answer: Yes

24. List three important types of information to document while conducting an investigation. (3 points) Answer: sample collection, photo/video, maps/diagrams, deviations (virtually any answer is acceptable)

25. Will you develop better sampling plans after taking this course and why? (2 points) Answer: Virtually any answer is acceptable.